

# The RGIS Data Viewer, a Prototype "Slippy Map" Interface for OGC WMS Services



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## Background

The emergence of Google Maps (<http://maps.google.com>) as a high performance internet mapping application has resulted in a model for map interaction that is intuitively understood by a large number of Internet users. One aspect of this interface is sometimes referred to as a "slippy map" - or a map that the user may interact with by dragging the map to pan to a new map location, creating the effect of a continuous map being viewed through a window in the web browser. Google also publishes an API for their mapping application that provides a capability to overlay labels and points and polylines over the map and imagery content of their web application within a separate web site. For many applications, these "mashups" of external data and content provided by Google may meet the requirements of a specific use, but this is not the case in all instances. In some cases, the terms of Google's terms of use are inconsistent with a specific application, in others, the capabilities of the Google Maps interface and associated API are inconsistent with specific client functionality required by an application. The latter is the case in EDAC's development of a visualization interface for the Resource Geographic Information System (RGIS).

## Needs

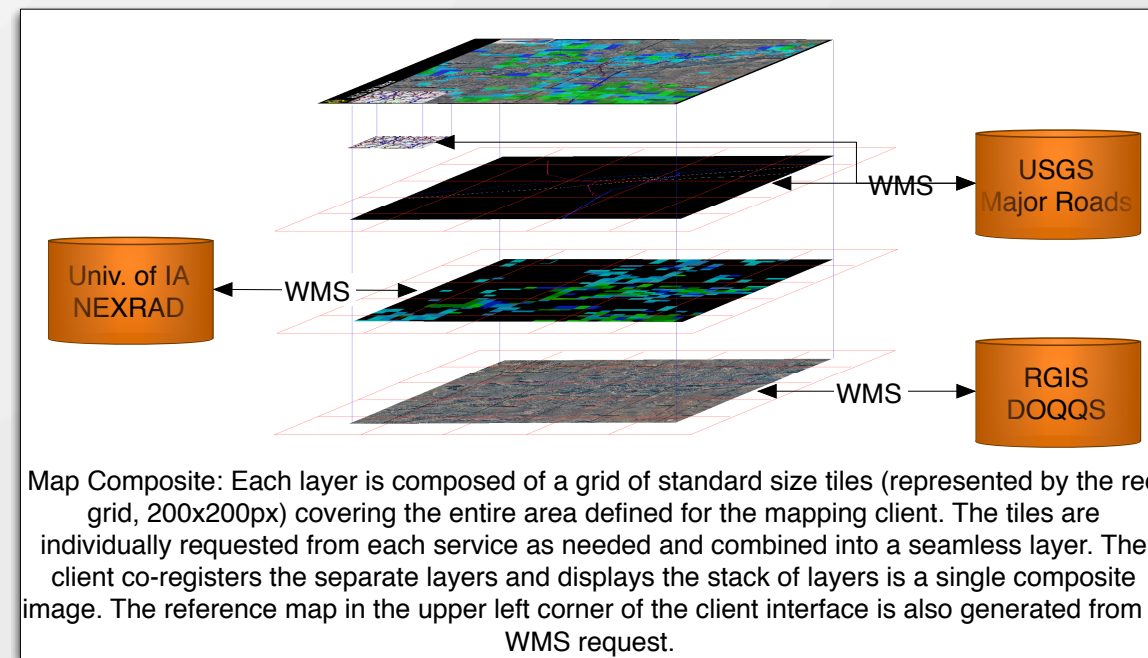
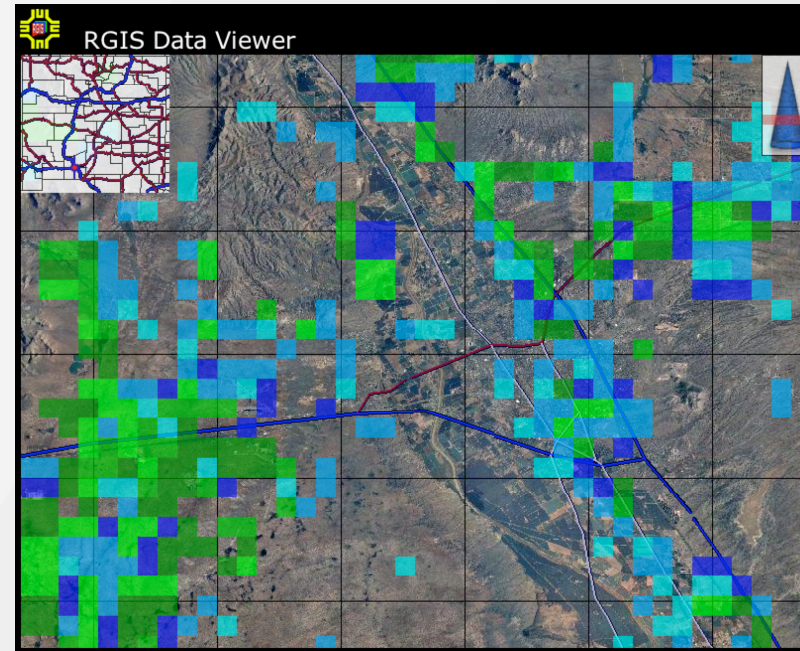
The New Mexico Resource Geographic Information System (RGIS), a clearinghouse for geospatial data for the state of New Mexico, has been developed and is maintained by the Earth Data Analysis Center (EDAC). RGIS provides access to a wide variety of geospatial data, including environmental, demographic, boundary, and remote sensing data products. These data comprise both raster and vector data formats and need to be accessible via a variety of interfaces:

- ✓ Download via a simple URL
- ✓ "Live Previews" based upon the actual data to be downloaded
- ✓ Through links in flexibly presented FGDC metadata

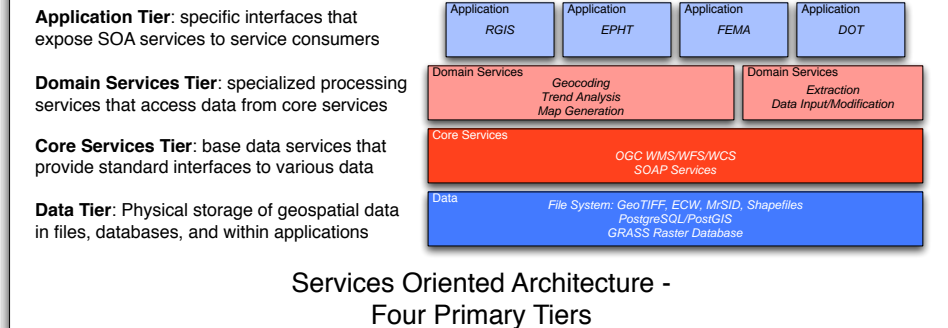
The current RGIS interface is based upon a file oriented delivery system that provides direct access to previews, metadata, and data files through static file-based URLs. A new version of RGIS is under development that implements the above listed interfaces through development of the multiple tiers of a services oriented architecture.

## Solution

In response to these needs, a multi-tiered services oriented architecture is under development in which there is a logical separation between the physical storage of data, core services based upon those data, secondary services that make use of core services, and application interfaces. The visualization interface described here represents an application tier component that makes use of the core OGC WMS services built upon the varied data products hosted in RGIS.



While the client is under development it can be accessed at:  
<http://rgis.unm.edu/mapper/index.html>



## Implementation

The client interface under development at the Earth Data Analysis Center is designed to be able to display any vector or raster data that are published as Open Geospatial Consortium (OGC) web map services. This client is being designed with the following goals:

- ✓ Compatibility with well-established Internet standards: HTML, CSS, Javascript
- ✓ Lightweight web client that loads quickly and provides a high-performance user experience
- ✓ Greatest practical cross-browser compatibility
- ✓ Ease of installation and configuration
- ✓ An ability to integrate map images provided by multiple distributed WMS servers simultaneously

The client interface is built using a basic set of components:

- ✓ A brief HTML document that provides the structure of the client
- ✓ A CSS (cascading style sheet) document that defines a limited number of styles relating to base positioning, colors, fonts, and opacity (styles.css)
- ✓ An external Javascript file that contains all client-specific functions - including client event handlers (functions.js)
- ✓ The external *Prototype* Javascript framework (<http://prototype.conio.net/>) - providing a base Javascript function base for the client (prototype.js)

The base HTML file and the external Javascript function file are highly customized versions of sample files provided by Scott Davis (OpenLogic) in a workshop presented at the 2006 O'Reilly Open Source Convention ([http://conferences.oreillynet.com/cs/os2006/view/e\\_sess/8807](http://conferences.oreillynet.com/cs/os2006/view/e_sess/8807)).

A key characteristic of the client, one that greatly enhances the perceived performance of the application, is that once the client is loaded in response to the initial client request, all other updates to the client interface are handled asynchronously, replacing or augmenting elements of the client interface incrementally without requiring the client to reload.

